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ABSTRACT

This paper presents an interpretation of student learning from a situated learning perspective, seeking to enhance approaches already employed in teaching games for understanding (TGfU) research. The analysis was designed to help identify three specific dimensions of situated learning in physical education: the perceptual-physical, social-interactive, and institutional-cultural, which have implications for the pedagogy of TGfU. The study describes what happened when a TGfU approach was implemented as part of a regular eighth-grade physical education program in basketball. Three vignettes based on critical incidents generated from observation, interview, and diary data illustrate various aspects of the situatedness of learning. Analysis of the vignettes showed that the constructs employed in cognitive, motor behavioral, and ecological approaches remained useful, but by themselves they provided incomplete explanations of learning to play games. Reworked within a situated perspective, the constructs provided theoretical tools for providing a more targeted approach to the pedagogy of TGfU. (Contains 27 references.) (SM)

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Teaching Games for Understanding: A Situated Perspective on Student Learning

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Introduction: Three Vignettes

#1 "Remember those strategies"

It's the first lesson of a 5 lesson unit on basketball for the Year 8 students at Bundoona High School near Brisbane. The students are playing 'tag-ball', a modified version of basketball, designed to teach offensive players to move into space and defensive players to close space down through team work. The modified game involves passing only. The no contact and no traveling rules apply. Offensive players move freely on court. When tagged with the ball, the offensive player is out of the game. The players' first attempt at 'tag-ball' features a great deal of movement on court. Despite this, the defensive team is largely unsuccessful at tagging their opponents, with defenders retaining the ball for long periods or making inaccurate passes. In a whole class discussion, Ann the teacher elicits responses from students that reveal they have good knowledge of appropriate strategies. Ann encourages the students to "remember those strategies" and provides time for discussion of the strategies within groups. However, as the game recommences, it is obvious that students are having difficulty putting their strategies into action, as the pattern of play is very similar to before. Some further intervention by Ann, a discussion on teamwork, some practice on passing techniques and leading for a pass, and the introduction of a second ball into the game eventually result in greater success for the defensive team.

2 "We're all clumped in like porridge"

Its now lesson three and students are playing a modified 5v5 version of basketball called 'keyball'. This game is designed to encourage players to concentrate on making space and progressing the ball to their basket. Only the nominated shooter is allowed in the key, hence reducing the technical demands of the game with respect to shooting for the majority of the players, while retaining shooting as a feature of the game. We focus in on a 10 minute passage of play between the red and green teams. During the entire episode, the red team manages to get the ball out of their defensive half only once. They regularly turn over possession of the ball and the Green team scores. Interspersed throughout are interventions by Ann to encourage players to discuss and experiment with strategies to open out the field, to create space and to work together as a team. Despite these interventions, the players are as Ann put it "clumping in like porridge".

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3 "We've got no idea what we're doing"

In lesson 4, some students are involved in a fake, lead and shoot drill based on a practice activity that was presented on task cards in the previous lesson. The drill has been underway for a few minutes. The offensive team makes some good leads but the passing is slow and ineffective and their court positioning is poor. As a result the practice keeps breaking down. An informal interview with the students about their positioning on court during the activity reveals that, in their own words, "we've got no idea what we're doing". They have positioned themselves that way because they perceive that is a requirement of the practice based on the task card from the previous lesson. Further questioning reveals that they understand concepts of leading into space and moving into positions that improve their shooting or passing options. It is obvious from their answers that they are aware of advantages of shooting from close to the basket. However, despite their appropriate answers, there is little improvement in performance on return to the practice.

Purpose

These three vignettes draw on data from a naturalistic study of a TGfU approach to junior high school basketball. Their purpose is to tell a story about situated learning in school physical education class. The scenes will be familiar to researchers of school physical education. We see defensive players who only with some difficulty can work as a team to tag their opponents even though they seem to "remember those strategies". We find a team trapped in their own defensive half of the court despite their understanding that "clumping in like porridge" is a source of their problems. And we find students participating in a drill, being busy, happy and good (Placek, 1983) and apparently on task, but admitting when asked that they "have no idea what they are doing".

The purpose of our presentation is to offer an interpretation of student learning from a situated learning perspective. In so doing, we seek to add value to approaches already employed in TGfU research, from cognitive, motor behavior, and ecological perspectives, by incorporating constructs from these approaches within a situated perspective. We propose that this analysis might assist us to identify three specific dimensions of situated learning in physical education, the perceptual-physical, social-interactive and institutional-cultural, that have implications for the pedagogy of TGfU.

Methods and procedures

Most studies of TGfU have adopted an experimental design (Rink et al, 1996). The present study sought to complement this experimental research by describing what happens when a TGfU approach is implemented as part of a regular physical education program. The study was naturalistic in the sense that it recorded events as they unfolded without seeking to pre-judge the outcomes of the unit.

Data Collection and Analysis

Thomas and Thomas (1994) advocate the use of a combination of data collection methods in naturalistic settings in order to investigate learning in games and sports. Following their suggestions, observational data formed a major source of evidence. Each lesson was videotaped and the tapes were transcribed in order to facilitate researcher recall and to permit post-fieldwork analysis. Students were randomly selected for informal interviews in small groups before, during and after episodes of participation to allow us to probe for understanding of the strategies and techniques being practiced. Ann, the teacher of the class, and Sandy, one of the researchers, also kept personal-professional diaries during the fieldwork phase of the project.

The observational data, interview transcripts and diaries were analyzed using a grounded theory approach involving thematic and line-by-line analysis techniques and memo writing (Glaser, 1978). The observational data and interviews with students were used to provide narrative accounts of lessons. Embedded in these narratives are interpretations made by the authors regarding the extent to which a group was able to complete successfully the tasks set for it by the teacher. For example, narratives contain accounts of the extent to which a group was able to practice strategies for receiving the ball in space. Line-by-line and thematic analysis and theoretical memos were also used to generate substantive theory to explain the data.

School and Participants

Bundoona is a suburban high school with a student profile, resources and facilities, timetable and class sizes broadly representative of the local district in the south east of the state. In Grade 8, physical education was a compulsory subject for all students for the equivalent of 3 lessons each week throughout the school year. The basketball unit consisted of 1 double (1 and a half hour) lesson per week for five weeks, which was the regular practice at Bundoona.

Basketball was considered by the research team to be a suitable choice for the application of a TGfU approach since the game can retain its integrity when the basic techniques of passing, shooting and dribbling have been modified to accommodate the students' experiences and abilities. Basketball can be modified to maximize student participation and to provide experiences of the strategies and tactics of playing invasion games in a relatively confined area, which assisted videotaping.

Ann was the teacher of the unit. She was a four year trained specialist teacher of physical education with two years teaching experience. The researchers worked closely with Ann to plan the unit prior to its commencement. One of the researchers (Sandy) also had continuous involvement with Ann throughout the unit in terms of assisting with the review of completed lessons and the adaptation of the unit plan to meet contingencies as these arose.

Critical Incidents and Vignettes

The three vignettes are based on critical incidents that were generated from the data to illustrate various aspects of the situatedness of learning. The representativeness of these data was a key criterion guiding their selection, in so far as they provided good illustrations the perceptual-physical, social-interactive and institutional-cultural dimensions of situated learning respectively. Theoretical saturation of each of these three conceptual categories occurred when the data indicating each category provided overwhelming support for their existence.

Overview of perspectives on learning to play games

Two dominant perspectives on learning to play games emerge from a review of the literature. In traditional forms of practice in school physical education and within some forms of motor learning theory concerned with motor behavior, technical proficiency is given greatest emphasis. In research on TGfU, declarative knowledge and procedural knowledge are given considerable attention. Much of the research on TGfU has taken the form of experimental studies that have compared TGfU with the forms of games teaching it is assumed to replace, traditional technique-based approaches that typically manipulate some form of whole/part/whole learning of skills (eg. Harrison et al., 1998; Oslin et al, 1998; Griffin et al, 1995; Turner & Martinek, 1992; McPherson and French, 1991; Lawton, 1989).

Rink et al (1996) noted that these studies have been unable to provide conclusive support for TGfU over technique-based approaches. It may be the case that the equivocal nature of these findings is in no small part due to their treatment of TGfU and technique-based approaches as alternative forms of practice. The difficulty may be located in the problematic relationship between knowledge and performance, and in the constructs used to theorize this relationship (Thomas and Thomas, 1994).

Recent development of an 'ecological' version of information processing has revealed the inadequacy of representing these perspectives as polarities by embracing both and by adding the additional process of perception (Abernethy, 1996). The ecological version of the information processing approach to learning makes an important contribution because it shows clearly the significance of the processes of perceiving and deciding in learning to play games. Movement execution remains a vital part of skilful physical performance within this framework. We suggest that a naturalistic approach to researching TGfU allows us to investigate how a teacher teaches tactics and skills through modified games.

A Perspective on Situated Learning

Drawing on cognitive, motor behavior, and ecological perspectives on learning to play games, and on the work of a number of situativity theorists (Prawat, 1999; Kirshner and Whitson, 1998; Greeno, 1997; Lave and Wenger, 1991; Bereiter, 1990), a situated perspective can be summarised as follows.

- Learning is an active process of engagement with tasks (socially organized forms of subject matter) leading to the appropriation, and thus adaptation, of knowledge – this principle is evidenced particularly in vignette 1;
- The learner's active engagement with tasks is embedded within and constituted by a number of contexts. The contexts in which learning is embedded include the immediate physical environment of the classroom, gym or playing field, social interaction between class members, institutional forms, and culture – this principle is evidenced in vignettes 1, 2 and 3;
- A situated learning perspective implies a need to employ various units of analysis such as the individual, the team or group, and the class – this principle is evidenced particularly in vignette 2;
- Within each unit of analysis, the relationships between components are of central interest – this principle is evidenced particularly in vignette 2.

These key principles of a situated perspective on learning to play games inform the analysis of the three vignettes with which we began the presentation.

Three dimensions of situated learning

We now provide an interpretation of the incidents reported in the vignettes from a situated learning perspective. The first dimension of situated learning was the perceptual-physical dimension.

A perceptual-physical dimension

The key events highlighted in the first vignette provide support for the experimental studies that have shown how declarative knowledge develops in novices earlier than procedural knowledge (McPherson and French, 1991). Some students had done literally as the teacher had asked, that they 'remember those strategies we talked about'. However, this knowledge was not immediately evident in the performance of the tasks the teacher set the class. The passing practice and another fake and lead practice set up by Ann could be viewed as an appropriate pedagogical response to the fact that the defensive teams were finding it difficult to tag their opponents. Ann assumed, reasonably, that the tag-ball game could be improved if students were able to pass with greater accuracy. The fake and lead practice was introduced to provide the additional opportunity for students to learn to recognize the cues that indicated when they should pass to a player on a lead, how to confuse an opponent, and how to defend against a tactic such as the fake. As the vignette briefly suggests, these tasks were not completed particularly successfully.

From a situated perspective, the extent to which players were able to perceive cues for action in the physical environment was a key factor limiting their performance of the tasks set by Ann. The clearest example of this was a fake and lead practice. This practice was hindered by the frequent failure of the passing player to release the pass to the leading player at the appropriate time. In the tag-ball game, the same problem

was evident. This suggests that recognizing appropriate cues in the physical environment at least in part triggers "remembering those strategies".

However, the player's ability to recognize visual cues does not offer a complete explanation of the events described in vignette # 1. To explain why the students found it difficult to deploy the strategies of tag-ball successfully we must also consider the social-interactive dimension of learning and the individual and the group as units of analysis (Cobb and Bowers, 1999; Silverman and Solmon, 1998). These issues are illustrated in the second vignette drawn from the data.

A social-interactive dimension

'Clumping in like porridge', as Ann put it, is a common feature of children's game play observed by teachers, coaches and parents (Placek et al, 1998). This incident is critical because it reiterates and confirms an observation by Thomas and Thomas (1994) that declarative, procedural and movement capabilities ('if-then-do') are interdependent. Both the classroom ecology and situated learning perspectives assist us to recognize that learning is socially as well as physically situated. In the case of classroom ecology, the social task system has tended to focus researchers' attention on the informal social climate of the classroom (Hastie and Siedentop, 1998). This is an important dimension of the social organization of learning, but it is not the key concern of the analysis in this study. It may be that Doyle's (1986) concept of programs of action in classroom activities provides a parallel construct to the social-interactive dimension of learning in games, since such programs identify the rules for appropriate engagement in learning tasks. In this study, the social dimension of the learning environment is defined as the interdependency of players in completing the tasks set by their teacher.

Players in the Red team were reluctant to space out on court because of their physical size and relatively low level of technical competence. Most players simply could not throw far enough and accurately enough to make a good pass over 3 or so meters. This issue was made more complex by the disproportion in size between class members. One tall boy in the Green team dominated much of play because it was so hard to throw the ball past or over him. Passing over a long distance was risky. The safer strategy as far as maintaining possession was concerned was to dribble the ball oneself or to get close enough to a teammate to virtually hand the ball over.

As the vignette suggested, this was a far from effective strategy for the Red team and resulted in them being confined to a small area of the court for 10 minutes of the game. Some players recognized the limitations of this strategy and made several good leads into space. This suggests that these individuals had developed some procedural knowledge. However, when the pass to the leading player either was not made at the right time, or was made ineffectively, this procedural knowledge counted for little in terms of gains for the team.

One possible explanation for this may be the social-interactive dimension of the learning environment. In a team game such as basketball the successful performance of a task is in part determined by the effectiveness of interactions between players. It is important that individual players develop declarative and procedural knowledge and technical competence. But the interplay between team members is also of vital importance to the performance of the task.

The observation that team games require interaction between individuals may appear to be self-evident and trite. However, we suggest that neither cognitive nor motor behavioral approaches have developed appropriate theoretical constructs to conceptualize the interdependency of individuals within team game performance. From a situated learning perspective, the successful performance of the task of 'keyball' required cooperation and communication within and between the Red and Green teams, processes TGfU is well placed to develop given its extensive use of question-answer techniques.

Developing constructs for the social as well as the perceptual-physical dimension of learning could help explain some of the events described in the first and second vignettes. However, an institutional-cultural level of analysis is also needed to explain some of the data contained in these 2 narratives. The third vignette provides the evidence base for examining this institutional-cultural dimension of learning.

An institutional-cultural dimension

The students' claim that " we have no idea what we're doing" in vignette #3 suggests that the students in this group had not grasped the concept of the practice and its relationship to playing basketball in the terms the teacher had intended. Their positioning on court was based on their attempt to follow as faithfully as possible the instructions on the teacher's task sheet. However, the task designed by the teacher did not appear to connect with these students' emerging understanding of the strategies and tactics of basketball. It was the detail of the task itself that preoccupied them in their efforts to be 'busy, happy and good'.

The incident for us is critical because it provides a glimpse of the institutional-cultural dimension of situated learning in which the students' comprehension of the task is not a mirror image of the teacher's intentions. "We've got no idea what we're doing" is evidence of a form of participation by students in the basketball unit that might be described by Carl Bereiter's (1990) notion of the schoolwork module. The students had not understood the fake, pass and shoot task set by the teacher in terms of the game of basketball. They had understood this to be another aspect of schoolwork and they participated in the task in a manner that reflected this understanding.

Perhaps the problem in the case of the fake, pass and shoot practice was that the task was too abstract and far removed from the students' comprehension of basketball. If so, it may be that more attention needs to be paid to students' conceptions of learning to play games. Although few of the class members had direct experience of playing

basketball prior to this unit, most had seen basketball played on television. They came to the lessons with a concept of 'basketball' already under construction. However, the adult version of the game is not a good point of reference for playing the game in school, since the students did not possess the physical attributes and experiences of professional adult players. If this is the students' only point of reference for playing basketball, it may be that any modified game form will look very different from this reference point. The cultural resources young people bring with them to classrooms may warrant serious consideration by researchers and teachers in terms of how learners comprehend the tasks set for them by teachers.

This concern for the institutional-cultural dimension of the learning environment and recognition of the importance of the student's comprehension of appropriate engagement with a task requires the introduction of a new construct. If the learner's perspective is to be incorporated into a situated theory of learning to play games, we need to add the construct of 'making sense'. Making sense of experience lies at the center of the process of adapting new knowledge to fit what a learner already knows (Prawat, 1999). Making sense is not merely a matter of acquiring new knowledge. Both perceiving and understanding are terms that describe the process of making sense. Making sense captures the interface of the known and familiar and the new and strange. The problem for the students practicing the fake, lead and shoot drill was that it only made sense to them as 'schoolwork'. The drill was the kind of activity teachers in school physical education lessons asked them to do. The schoolwork module, reflecting the institutional form of the school, prevented these students from making a connection between the task and learning to play basketball on the basis of the personal cultural resources they brought to the lesson.

Conclusion: Implications for the pedagogy of TGfU

The purpose of this paper has been to provide an interpretation from a situated perspective of learning within a TGfU approach to junior high school basketball. The three vignettes provide a brief illustration of three dimensions of situated learning, the perceptual-physical, the social-interactive and the institutional-cultural.

Analyses of three vignettes showed that the constructs employed in cognitive, motor behavioral and ecological approaches remain useful, but that by themselves they provide incomplete explanations of learning to play games. Reworked within a situated perspective, these constructs provided theoretical tools with which to provide a more targeted approach to the pedagogy of TGfU.

Vignette # 1 supports the view that students taught from a TGfU perspective develop declarative knowledge of strategies early in the learning process, but that this knowledge is not necessarily transformed into procedural knowledge, even when the technical demands of the task are simplified. A situated perspective suggests that the ability to recognize visual cues in the immediate physical environment is one important limiting factor for novices. Specific attention to cue recognition and the

development of practices to teach cue recognition and game decision making may be of value in addressing this issue.

Vignette # 2 suggests that the social-interactive nature of the basketball lessons, particularly the interactions between and within teams, is a key factor in determining successful learning. Within a team, individuals needed to be aware of and to be able to accommodate others' strengths and weaknesses as players. Identifying the team as a unit of analysis recognizes that the knowledge and proficiency of other team members will circumscribe the display of knowledge and technical proficiency on the part of an individual. Cooperation and communication are also required between the teams. For example, the Greens could have chosen as a team to mark the Reds at half court rather than full court, or to stand back twice the usual distance.

By adjusting their own practices they would have assisted the group as a whole to perform the task successfully and would in turn have been better able to play what Almond (1997) calls 'the good game'. Several curriculum models, such as Hellison's (1995) Social Responsibility model, Siedentop's (1994) Sport Education model, and Ennis's (1999) Sport for Peace model, have recognized the need to teach players explicitly the skills of planning, negotiation, respect for differences, and conflict resolution that underpin good communication within and between teams. We suggest TGfU also has the potential to develop these processes.

Vignette # 3 suggested that players' abilities to make sense of tasks were shaped by the institutionalized culture of the school in the form of the schoolwork module and the popular physical cultural meanings the students bring to lessons. Acknowledgement and legitimation of the perspectives students bring to school physical education may be a useful starting point for teachers' planning (Griffin et al, 1999). Curriculum models such as Sport Education, which model practices in the community of sport and disrupt the schoolwork form of physical education (Kirk, 1999), may provide another means of making young people's experiences meaningful.

In concluding, we think that one advantage of studying attempts to implement TGfU within the regular practice of schools is that no artificial contrasts are drawn between tactical and technique-based approaches. Naturalistic studies also provide opportunities to investigate student learning within the routine institutional practices of schools. We suggest that by taking this approach it becomes possible to access the regular and typical school learning experiences of students in relation to the real social, institutional and cultural dimensions of learning. The challenge for a situated perspective on learning is to examine each of these parts in relation to other parts and to do this well enough to inform interventions aimed at renewing educational practice.

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